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ABSTRACT

Research has documented two behavior patterns known as Type A and Type B. Type A behavior is characterized by competitive striving, a sense of urgency, and hostility, while Type B behavior is less aggressive and more relaxed. It has been theorized that individuals exhibiting Type A behavior have a strong need to maintain control over their environment and that they react more strongly than other individuals when they experience threat. Two studies were conducted to investigate nonverbal responses by Type A individuals to interpersonal threat. In the first study, 80 college students participated in a sales transaction and assumed the role of either a customer or a salesperson. The customer role provided a situation wherein students expected a threat to their behavioral freedom, while the salesperson role lacked such a threat. The results indicated that an interpersonal interaction characterized by threat to freedom can produce nonverbal reaction. Overall, the subjects in the customer and salesperson roles used nonverbal behaviors in separate and distinct ways. More importantly, Type A and Type B individuals differed in the use of personal space and interpersonal distance while in the customer role--a role that subjects in the second study confirmed was threatening. (FL)

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Nonverbal Responses to a Threat to Interpersonal Control
and the Type A Behavior Pattern

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Abstract

Two studies were conducted to investigate nonverbal responses by Type A's and B's to an interpersonal threat. In the first study, subjects participated in a sales interaction and assumed the role of a customer or salesperson. The customer role provided a situation where subjects expected a threat to their behavioral freedom, while the salesperson role lacked such a threat. Results indicated that customers smiled less, maintained gaze less, and crossed their arms more than salespeople. In addition, customers used greater interpersonal distances, changed to a closer final distance, and claimed larger personal spaces, both overall and in front of the body, than salespeople. Type A customer's claimed more space in front of the body, and changed to a closer final interpersonal distance than Type B customers, indicative of the greater reactance hypothesized for Type A's. A second study examined more closely the perceptions of customers and salespeople and verified that reactance was aroused by the customer role.

Nonverbal Responses to a Threat to Interpersonal Control
and the Type A Behavior Pattern

Recent research has documented the relationship between an overt behavior pattern, known as Type A, and the incidence of coronary heart disease (see Dembroski, Weiss, Shields, Haynes, & Feinleib, 1978; Krantz, Glass, Schaeffer, & Davia, in press). The Type A pattern is characterized by competitive achievement striving, time urgency, and hostility, while a noncoronary-prone pattern (known as Type B) consists of a more relaxed, less aggressive behavioral orientation. An extensive program of research by Glass and his colleagues (Glass, 1977) has substantiated the behavioral components of the Type A pattern, and has indicated that it is based on a need to maintain personal control over the environment. For example, when initially confronted with an uncontrollable stressor, Type A's respond with exaggerated efforts to regain control. However, when faced with extensive exposure to a lack of control, Type A's exhibit a greater decrement in effort relative to Type B's.

The presumed control basis of the Type A pattern has been the focus of several studies that have utilized a reactance theory framework (Brehm, 1972; Wortman & Brehm, 1975). Reactance theory states that the actual or threatened elimination of a person's freedom produces a motivational state (called reactance), the goal of which is the restoration of the freedom. Wortman and Brehm (1975) have added that one's expectation for control (or freedom) will mediate the response to threat. In particular, individuals with high expectations for control experience greater reactance following threat, and exhibit greater learned helplessness following extended noncontrol (e.g., Pittman & Pittman, 1979). This pattern of

initial hyperresponsiveness (reactance) followed by hyporesponsiveness (learned helplessness) is particularly characteristic of Type A's, rendering the reactance paradigm particularly useful for studying their reactions to threatened loss of control. Indeed, Carver (1980, see also Snyder & Frankel, Note 1) utilized a persuasion paradigm and found that a coercive communication produced greater perceptions of coercive intent, and greater resistance to persuasion, by Type A's than Type B's. Similarly, Rhodewalt and Comer (in press) demonstrated greater reactance effects in Type A's than B's using a choice-elimination procedure. Thus, in situations characterized by a threat to freedom or control, Type A's exhibit greater reactance, providing substantial support for the view that a control dynamic underlies the pattern. The terminology which has been used by Type A researchers (e.g., need for control, threatened loss of control) differs somewhat from that used by reactance researchers (e.g., restriction of behavioral freedom, restriction of choice); to indicate that a threat to freedom implies a threatened loss of control, we shall use them interchangeably in this article.

The present two studies sought to extend the research on Type A responses to a threat to behavioral freedom in two major ways. First, nearly all experimental attempts to induce reactive responding by Type A's have manipulated task parameters (e.g., choice elimination, message content). However, a great deal of day-to-day life involves face-to-face interpersonal encounters which are characterized by the explicit attempt by one person to manipulate, dominate, or otherwise control another person (e.g., Beier & Valens, 1975; Wheeler, Deci, Reis, & Zuckerman, 1978). Most people have had the experience of being "cornered" by a "pushy" salesperson, or influenced by a domineering friend. Ordinary conversations can involve an

attempt by one person to force an opinion on another (cf. Carver, 1980). Such face-to-face encounters may be an important source of threat to Type A's' behavioral freedom, in which case they should be as capable of eliciting a reactive response as threats originating from noninterpersonal sources.

Second, and more importantly, investigations of reactive responding by Type A's have relied on paper and pencil measures. These demonstrate the cognitive-perceptual responses to threat, but not the behavioral responses. If the goal of reactance is to reassert or regain a lost freedom, then a behavioral response toward the agent of the potential control loss should be evident. In fact, in interpersonal encounters where freedom is threatened, a behavioral response would appear to be the only viable option for regaining perceived control. Thus, the present research focused on nonverbal responses to interpersonally aroused reactance. Several nonverbals have been observed to be useful in regulating interpersonal interactions (see Altman, 1975; Ekman & Friesen, 1975; Harper, Wiens, & Matarazzo, 1978), and presented themselves as possible channels for the exhibition of behaviorally reactive responses. We chose to focus on five nonverbals because of their demonstrated utility in previous research, and because most are easily and nonreactively observed. In particular, we examined the use of interpersonal distance, gaze, smiling, arm position, and personal space.

Interpersonal distance serves a central role in all face-to-face interactions.¹ As Hall (1959, 1966) points out, the quantity and quality of communication cues vary as a function of interpersonal distance. As a result, other nonverbal (e.g., eye contact, facial expression), as well as verbal cues (e.g., intonation) rely on the distance separating the

interactants for their effectiveness. In addition, interpersonal distance itself is a communication cue, with closer distances found to be associated with greater friendship (Little, 1965; Willis, 1966), similarity of opinions (Little, Ulehla, & Henderson, 1966), and the wish to convey a friendly impression (Rosenfeld, 1965). However, this relationship is determined somewhat situationally, with close distances also found to be associated with hostility (Meisels & Dosey, 1971). Consequently, the quality and quantity of an interaction, as well as the speaker's effectiveness (Albert & Dabbs, 1970), can be altered greatly by the distance separating the participants.

Eye contact or gaze represents both a powerful sender and receiver of information (Argyle & Kendon, 1967). Visual perception is the major link to the nonverbal cues of others and must be used if information from these channels is to be processed. Equally important, gaze conveys information and has been shown to be associated with greater intimacy (Argyle & Dean, 1965), more friendship and affiliation (Efran & Broughton, 1966; Rosenfeld, 1965), and greater liking of a communicator for an addressee (Exline, 1963; Exline, Gray, & Schuette, 1965; Mehrabian, 1968a,b). Gaze provides a cue that signals a willingness to interact, a receptivity to the cues of another, and can thus serve as another means of regulating an interaction.

Another nonverbal behavior that has a communicative function similar to eye contact is the smile. While the smile is universally associated with happiness, it has also been shown to have independent communicative significance. For example, Kraut and Johnston (1979) demonstrated that smiling was associated with face-to-face interactions independently of happiness. The authors concluded that smiling is a social communication

cue that signals an individual's motive to establish or maintain a friendly interaction (cf. Hooff, 1972). Similarly, Kendon & Ferber (1973) found that smiling occurred in the initial stages of a greeting when individuals were showing a willingness to establish or reaffirm a relationship. In sum, a smile can invite interaction; its absence can discourage interaction. Its judicious utilization should enhance control over an opponent.

Previous research (e.g., Mehrabian, 1968a,b, 1969) indicates a number of body positions and postures can be important in interactions. In general, more favorable interactions are associated with more relaxed, direct body orientation with more forward lean. The present study investigated a particular type of posture hypothesized to be of importance in the context of interpersonal interactions characterized by high or low threat to control. Specifically, an individual can signal a defiant attitude and an unwillingness to interact by crossing the arms across the chest. This type of posture has not received much attention in prior research (e.g., Mehrabian, 1968a), but was included because of its presumed utility as a defensive posture.

Whereas interpersonal distance, smile, gaze, and arm cross are all visible to the opponent in an interaction, another mechanism which may enhance perceived control is not: This mechanism is personal space. Interpersonal distance and personal space traditionally have been treated as equals in the literature (cf. Hayduk, 1978), but an important distinction exists that is best exemplified by the differences in definition. Interpersonal distance is most commonly defined as the metric measure between two individuals. Personal space, on the other hand, is characterized by subjective ownership. It is the area immediately surrounding the body

considered to be one's own. Personal space thus appears to have a decidedly more cognitive or subjective flavor. It is not observable by others in an interaction and thus cannot be used as a communication cue. Rather, it most likely serves a psychological protection function in the face of perceived threat (cf. Dosey & Meisels, 1969; Horowitz, Duff, & Stratton, 1964). In this respect, personal space should function as an effective intrapersonal control mechanism; it should expand in response to perceived threat, providing individuals with a greater sense of control.

Two studies were conducted that utilized a sales interaction as the setting for the interpersonal threat. A sales interaction represents a common situation in which a coercive intent can be present. As a result, it provides a situation in which reactance can be induced in an interpersonal interaction, and subsequent behavioral responses measured. In the high reactance condition subjects assumed the role of a customer in an interaction with a domineering confederate who acted as a salesperson. The roles were reversed to provide a situation with low reactance. Based on the nature of these roles, customers were expected to maintain greater interpersonal distances, claim larger personal spaces, exhibit greater gaze aversion, less smiling, and more defiant arm crossing. The greater distance, arm crossing, and gaze aversion, and the lesser smiling, effectively reduce communication and signal an unwillingness to interact. The greater personal space represents a reactive response to the perceived threat (cf. Edney, Walker, & Jordan, 1976) providing a greater sense of control. With respect to the interpersonal distance and personal space measures, two additional hypotheses were made. First, interpersonal distance was measured both at the beginning and the end of the interaction allowing detection of change. A change to a closer final position in the

high reactance condition would be consistent with previous research (Brehm, 1972; Wortman & Brehm, 1975), whereby a threat to control is followed by an attempt to regain control, easily accomplished in an interpersonal interaction through assertive behavior. Moreover, interpersonal distance plays a central role in regulating the intensity and quality of other nonverbal cues (cf. Argyle & Dean, 1965; Meisels & Dosey, 1971; Hall, 1966). A closer final interpersonal distance would provide more impact by amplifying the other nonverbals (cf. Albert & Dabbs, 1970; Rosnow & Robinson, 1967; Wilson, Note 2) and emphasizing defiance. Second, both size and shape of personal space were examined (cf. Hayduk, 1978) because the reactive expansion of personal space to threat could occur in two ways -- overall and/or in the direction from which the threat was perceived to originate. The latter case would be indicated by shape differences wherein more space is claimed in front of the body.

More importantly, if the customer role is characterized by high threat to freedom, then Type A's and B's should differ in their responses in that situation, but not in their responses in the salesperson role. As a result, Type A customers were expected to use the behaviors in a more reactive manner indicative of their desire to maintain control. This would be exhibited by shorter interpersonal distances, both initial and final, with a greater change in position than Type B's. In addition, Type A's were expected to claim larger personal spaces, either overall and/or in front of the body, and to use less gaze, less smiling, and more arm crossing, though these latter predictions were more tenuous because of the dependence of these behaviors on interpersonal distance for their effectiveness. A second study was conducted to clarify subjects' perceptions of the customer and salesperson roles, and to validate that a

reactance arousing situation had been produced.

STUDY I

Method

Overview

A 2(Type A-B) x 2(high-low reactance: i.e., customer-salesperson) factorial design was used with subjects randomly assigned to the latter treatment.² Each subject was given one of two instructions designed to elicit differential control strategies during an interaction with a confederate. Both verbal and nonverbal dependent measures were collected to assess subject's responses to the different situations. These included initial and final interpersonal distance, size and shape of personal space, eye gaze, smiling, arm position, and self-reported control, comfort, and regard for the confederate.

Subjects

Subjects were 80 undergraduate students (40 male, 40 female) recruited from an introductory psychology class. All subjects received extra-credit toward their course grade for participating in the study. Mean age of the sample was 20 years.

Confederates

Two confederates (1 male, 1 female) were used in the experiment. Both were undergraduates of average height, weight, and appearance. For all conditions, they were instructed not to smile, but to effect a relaxed expression and gaze towards the subject as s/he entered the room.

Dependent Measures

Interpersonal distance. Interpersonal distance was defined as the metric measure between the subject and the confederate. Both the initial and final interpersonal distances were measured after the interaction.

Personal space. Personal space was defined as the area immediately surrounding a subject's body that was claimed as the exclusive space of that subject. The measurement procedure was adapted from Edney (1975; Edney, Walker, & Jordan, 1976). A marker was placed where the subject was standing to provide a point of reference. Each subject then mapped out a personal space by laying down a string so that it enclosed all of the space felt to be exclusively his/hers. No restrictions were placed on shape or size. It is recognized that this procedure makes personal space "visible" to the other participant in the interaction. However, given the less reliable/valid alternative measures (see Hayduk, 1978), the present procedure seemed most desirable. To minimize the interpersonal influence of personal space, it was measured after gaze, smile, arm cross, and initial distance.

At the conclusion of the interaction, eight measures were taken on each subject's personal space so that both size and shape could be examined. One measurement was taken at every 45° around the hypothetical circle, beginning with the position immediately in front of the subject and proceeding clockwise. At each position, the distance from the marker was noted. These measures were summed to obtain an index on the total size of the space, and analyzed as repeated measures, the quadratic component of which is an index of the shape of space.

Gaze, smile, and arm cross. These three measures were recorded as the subject entered the room and walked towards the confederate (a trip taking approximately 2 seconds). For convenience, each was coded dichotomously (absent/present). Gaze was defined as the maintenance of eye contact, and was scored as absent if, at any time during the measurement period, the subject diverted his/her eyes away from the confederate, but

not towards the experimenter. Subjects were coded as smiling if they smiled at any time while entering the room. Subjects were coded as crossing their arms if they did so at any time while entering the room.

Eye contact, smile, and arm cross were measured only at the beginning of the interaction for several reasons. First, an effort was made to make the interaction situation as unstructured and realistic as possible. Thus, the presence of videotape equipment or observers in the room was considered undesirable and distracting, and negated the possibility of continuous measurement. Rather the initial presence of eye contact and smile was recorded unobtrusively by the confederate, and arm cross was scored by the experimenter. None of these could be recorded past the initial contact because of the involving nature of the interaction. Second, it was expected that effects on nonverbal behaviors would be greatest at the beginning of the interaction when subjects' expectations for high or low threat to freedom were most salient. Finally, both popular wisdom (e.g., Carnegie, 1936) and research evidence (e.g., Asch, 1946; Snyder & Swann, 1978; Snyder, Tanke, & Berscheid, 1977; Snyder & Uranowitz, 1978) indicate the importance of first impressions, both for those forming impressions, and for those wishing to make an impression. Thus, we expected that our ability to detect behavioral differences would be enhanced by focusing on the initial part of the interaction.

Self-report measures. A self-report questionnaire was administered during the interaction to assess the perceptions of each subject during the interaction and aid in the interpretation of behavioral effects. The questionnaire contained ten 8-point bipolar adjectives that measured three conceptual domains: perceived control (control, security, privacy, freedom, amount of control by the confederate); felt comfort (comfort, stress,

and perceived comfort of the confederate); and regard for the confederate (liking for the confederate and attractiveness of the confederate).

Training of Confederates

Prior to the experiment, it was necessary to train the confederates on the detection of gaze and smile. This was done by having the experimenter or the other confederate play the role of the subject and use various combinations of gaze/gaze aversion and smile/no smile, each to varying degrees. Because of the intentionally simple nature of definition, confederates were able to detect all combinations, insuring high reliability during the actual interactions. Using simple definitions and measuring only facial nonverbals were chosen because a formal reliability check was not possible during the experiment (i.e., there were no other observers in the room). However, as it turned out, the experimenter had several opportunities to check on and confirm the confederate's reliability during the data collection.

A similar training procedure was used for the experimenter's detection of arm crossing. However, the obvious nature of this posture made it extremely easy to detect, with no errors during training.

Procedure

Upon arrival, each subject was met by the experimenter and seated in a room adjacent to that in which the interaction would take place. The subject was given a brief written description of the experiment which informed him/her that the study was designed to examine how people respond in a variety of day-to-day interactions. Subjects were told that they would take part in an interaction with another subject to permit the researcher to determine why certain types of behavior were more common in particular types of interactions. The description emphasized that there

were no "right" or "wrong" ways to interact and that each subject should act in the way that s/he normally would in similar real-life situations.

After consenting to take part in the experiment, the subject filled out the Jenkins Activity Survey (JAS) (Krantz, Glass, & Snyder, 1974), a measure of the Type A pattern. The justification for this task was that information on everyday behaviors would help the investigator understand the outcome of the interactions. The items on the JAS tap aspects of everyday behavior, thus legitimizing the cover story. No subjects expressed suspicion. The JAS scales were scored at the conclusion of the study to insure that the experimenter and confederate were blind to subject status on this variable.

The subject was next given instructions explaining the interaction in which s/he would take part. Subjects in the high reactance condition were told that they would take part in a sales interaction with another subject where the other subject would attempt to sell them two expensive raffle tickets. It was explained to the subject that the investigator was interested in this type of interaction because experienced salespeople claim that they can sell anything, even difficult items like expensive raffle tickets, by gaining complete control over the customer and the sales interaction. It is not known how this is done so the other subject (i.e., confederate) would attempt such tactics. It was further explained that one way a customer might effectively avoid being "convinced" to buy such items would be to avoid being controlled by the salesperson. However, it was not known how people do this, so the subject was asked to resist the control attempts of the salesperson in any way that was best and natural for him/her. In this way, the investigator would be able to judge the salesperson's effectiveness and the tactics the subject used in the

role of customer. Thus, this situation induced the subject to expect that the confederate would be domineering and attempt to control him/her.

To provide a situation without a threat to control, the roles of customer and salesperson were reversed. Subjects were given the same rationale for investigating the sales interaction, but were asked to act as salesperson and attempt to gain control over the other subject while trying to sell the tickets. This situation thus gave subjects the expectation of having control rather than having the expectation of its possible loss.

The sales interaction derived from two pilot studies which indicated that it was the type of interaction experienced fairly often by most people and one where the roles of salesperson and customer were quite easily assumed. More importantly, subjects had no difficulty understanding the relationship of control and threat to such interactions. It was felt that this situation would provide a realistic setting within the constraints of an experimental procedure and thus provide adequate control without too greatly sacrificing generalizability. Finally, the use of raffle tickets as the sales item was to eliminate the actual product (a clock-radio) from the interaction so subjects wouldn't be distracted, and to keep attention focused on the other participant.

Manipulation check. The experimenter checked the subjects' comprehension of the instructions by asking for a brief verbal reiteration. This insured that each subject understood the role he or she would take in the interaction and the emphasis placed on control. A more detailed examination of subjects' role perceptions is presented in Study II.

The subject was led to the next room to begin the interaction, but was cautioned not to turn to the experimenter for help once inside the

room. Subjects were told to carry out the interaction until interrupted by the experimenter. The room was furnished with a table and chair, as well as coat, books, and a questionnaire to give the impression that the confederate had been filling out the scale, too.

Immediately upon entering the room, the subject approached the confederate (positioned 4.88 meters from the door) to begin the interaction. Concomitantly, the confederate and experimenter observed the behavior of the subject until he or she stopped walking. The experimenter noted whether the subject crossed his/her arms and the confederate noted whether the subject smiled or discontinued eye contact. As soon as the subject stopped walking, the experimenter intervened and explained that a very important part of an interaction is the initial contact. It is at this point, before any real interaction has taken place, that people "size up" one another and form first impressions. He went on to explain that people also begin responding in subtle ways, one of which is the amount of personal space claimed as one's own. It was explained that personal space is the bubble or area immediately surrounding one's body felt to be the exclusive space of a person. The subject and confederate were then asked to map out their personal spaces. The experimenter placed a marker where the subject and confederate were standing to provide a point of reference (this also constituted the measure of initial interpersonal distance). He then produced a ball of string and scissors and asked that each lay down the string so that it completely enclosed their personal spaces. They were told that their personal spaces could be any size or shape, and could even overlap, and that the important thing to remember was that the string should enclose all the space felt to be exclusively their's. In all conditions, the subject

was asked to mark his/her space first, after which the confederate mapped out a circular space of approximately 76 centimeters radius. Note that at this point, all nonverbal behaviors except final distance had been collected, with all but personal space collected unobtrusively.

The experimenter next handed a clipboard, questionnaire, and pencil to the subject and confederate to measure first impressions. The subject's clipboard contained the 10-item self-report questionnaire. The confederate's clipboard contained a questionnaire designed to closely resemble the subject's, but which contained a place to record the previously observed eye contact and smiling by the subject. The confederate continued to act as though filling out the questionnaire until the subject was finished. It was not until this point that the confederate knew whether his/her role was to deliver or receive the salespitch. This information was written on a card underneath the questionnaire. Thus, his/her role expectations could have no influence on measures taken prior to that point.

When the subject completed the questionnaire, the experimenter collected the materials and instructed the subject and confederate to resume the interaction. After two minutes, the experimenter coughed lightly as a signal to the confederate to end the interaction. Anecdotally, it was observed that it often took the confederate 10-15 seconds to bring the interaction to a close, indicating the involving nature of the interaction. In nearly all cases, subjects showed a diversity of style and a high degree of involvement.

The experimenter marked the final position of the interactants (the confederate's position was unchanged) and led the subject back to the original room where he/she was debriefed. During the debriefing period, subjects were asked how suspicious they had been, if they knew the

experimenter's hypotheses, and what measures had been collected. While several subjects (3) suspected that the other subject was a confederate, there was, in general, a very low rate of suspicion. No subject was able to guess the hypotheses and only one subject guessed that an unobtrusive measure (initial distance) had been collected. (All, of course, knew that personal space, final distance, and self-report measures had been taken.) After the debriefing session, the subject was excused.

Results

Preliminary Analyses

An initial correlation analysis indicated that the 10 items on the self-report questionnaire were intercorrelated and formed three major clusters. To eliminate redundant significance tests, and to create more reliable indices, composites were formed. The items, consisting of self-reported freedom, privacy, control, security, and control by the confederate, were summed to create a measure of overall control (average $r = .24$). The items tapping stress and comfort formed an overall comfort measure ($r = -.56$). The items measuring attractiveness and liking of the confederate were summed to create an indicator of regard for the confederate ($r = .62$). The item measuring perceived comfort of the confederate was not included in the analyses due to low intercorrelation and the indication by several subjects that it could not be assessed adequately.

The sequential nature of data collection also necessitated a modification of the personal space scores prior to analysis. Since the personal space measures were collected following subjects' establishment of an initial distance, it was decided to remove variation due to this factor within conditions to get a purer estimate of treatment effects. This correction followed from previous research indicating that interpersonal

distance can affect the size of personal space (Edney, Walker, & Jordan, 1976). To accomplish this correction, personal space scores were residualized (Cronbach & Furby, 1970) within conditions. This procedure removes variation due to interpersonal distance within conditions by subtracting the predicted personal space score (i.e., estimates based on a regression analysis using interpersonal distance as the predictor) from the obtained score. The mean personal space score was then added to the residualized score to regain the proper metric. A 1 df adjustment in the error terms of the personal space analyses was made to account for the residualization.³

Major Analyses

Data were analyzed using univariate analyses of variance with least squares solution for unequal n. Because random assignment to role conditions was made without knowledge of JAS scores, there were unequal numbers of Type A's and B's in those conditions. The cell n's were as follows: Type A -- customer -- 23, Type B -- customer -- 17, Type A -- salesperson -- 19, Type B -- salesperson -- 21. Type A-B was defined by a median-split (Md = 8.5).

Main effects of subject role. It was expected that the nature of the salesperson-customer roles would produce differential use of the non-verbal behaviors. The results bore this out. Relative to persons in the salesperson role, smaller proportions of those in the customer role smiled (.48 vs. .75), $F(1,76) = 6.47$, $p < .025$, and maintained eye gaze (.30 vs. .48), $F(1,76) = 4.22$, $p < .05$, however larger proportions used the defiant arm cross (.48 vs. .07), $F(1,76) = 21.56$, $p < .001$.

Subjects also showed large differences in interpersonal distance, with customers using greater distances (M = 202.18 cm) than salespeople

($\bar{M} = 104.65$ cm), $F(1,76) = 75.24$, $p < .001$. Customers also showed a greater change from initial to final position ($\bar{M} = 13.87$ cm) than salespeople ($\bar{M} = 1.80$ cm), $F(1,76) = 6.30$, $p < .025$, with the final position being closer to the confederate. This change is consistent with the hypothesis based on reactance wherein threatened subjects respond to the threat with a behaviorally assertive response. However, it may also represent a change from an initially uncomfortable distance (although threatened subjects did not approach as close as nonthreatened subjects, and if comfort alone were operating, they would have). Corroborating evidence for the reactance explanation will be presented below.

Personal space differences consistent with hypotheses were also found. Customers claimed larger personal spaces overall ($\bar{M} = 82.42$ cm radius) than salespeople ($\bar{M} = 68.60$ cm radius), $F(1,75) = 4.02$, $p < .05$. Equally important, customers exhibited greater personal space claims in front of the body. This was evidenced by a significant interaction between Subject Role and the quadratic component for the eight repeated measures ($F(1,75) = 6.93$, $p < .025$). The average sizes and shapes of personal spaces for the two conditions can be estimated from Figure 1:

Insert Figure 1 about here

Finally, analysis of the self-report measures revealed that while customers had lower regard for the confederate ($\bar{M} = 9.45$) than salespeople ($\bar{M} = 10.53$), $F(1,76) = 3.77$, $p < .10$; they also perceived themselves as having more control ($\bar{M} = 16.82$ vs. $\bar{M} = 14.5$), $F(1,76) = 4.13$, $p < .05$. Perhaps customers reacted to the threat by exaggerating their perceptions of control. This may be due in part to their expanded personal spaces

which were hypothesized to provide psychological protection. A significant correlation between personal space size and perceived control ($r = .45$, $p < .01$) substantiates this interpretation. Further clarification of role perceptions is provided by Study II.

Main effects of Type A-B. The A-B variable had no simple influence on the nonverbals of smiling, eye gaze, or arm crossing; however, it did influence both the sizes of claimed personal space and the changes from initial to final interpersonal distance. Type A's claimed larger personal spaces overall ($M = 83.46$ cm radius) than Type B's ($M = 66.72$ cm radius), $F(1,75) = 7.56$, $p < .01$. In addition, Type A's exhibited a greater change from initial to final position ($M = 14.32$ cm) than Type B's ($M = .66$ cm), $F(1,76) = 4.97$, $p < .05$. These results are qualified by Type A-B by Subject Role interactions presented in the next section. The A-B variable had no influence on the self-report measures; this is a common finding which will be addressed in the Discussion section.

Interactive effects of Type A-B and subject role. It was predicted that Type A's would use the nonverbal behaviors more reactively than Type B's when confronted with an interpersonal threat to control. There was little support for this hypothesis among the smile, eye gaze, and arm cross measures except when they were treated as social units, or patterns of nonverbals (see Strube and Werner, Note 3). However, both interpersonal distance and personal space provided support for the reactance hypothesis. The analysis of interpersonal distance indicated a marginally significant interaction among Type A-B, Subject Role, and Initial vs. Final Distance, $F(1,76) = 3.06$, $p < .09$. However, the test of the interaction does not address the hypothesis sensitively since an antagonistic interaction (Neale & Liebert, 1980) was not expected. Rather,

only Type A customers were expected to show a change in distance. A more sensitive test of the hypothesis is provided by contrasting the differences between initial and final distances within each Type A-B/Subject Role condition. This analysis revealed that only Type A's in the customer role exhibited a significant change in distance, $t(76) = 4.83$, $p < .001$. As expected on the basis of reactance, Type A's showed a decrease in distance from initial ($M = 197.30$ cm) to final ($M = 171.04$ cm) measures. Changes in the other three conditions ranged from -2.08 cm (an increase) to 4.01 cm (all t 's(76) < 1). A contrast of the Type A-Customer group with the remaining conditions indicated a significant difference ($t(76) = 3.56$, $p < .001$) suggesting that reactive changes occurred only in a threatening situation by subjects prone to reactance effects.

The personal space data also supported the hypothesis of differential use by Type A's and B's under threat. It was expected that Type A's would claim larger spaces than Type B's when confronted with a threat to control. Further, it was anticipated that such an expansion might occur overall and/or in front of the body (direction from which the threat originated). Results indicated that only the latter case was true. The Type A-B x Subject Role x Repeated Measures (quadratic) interaction was marginally significant, $F(1,76) = 3.05$, $p < .09$, indicating that the shapes of personal spaces differed by conditions. Again, a more sensitive test is provided by examining personal space shapes within each Type A-B/Subject Role condition. This was accomplished by contrasting the three measures of personal space in front of the body, with the three measures behind the body. This analysis indicated that Type A customers ($t(75) = 1.66$, $p < .05$), but not Type B customers ($t(75) = -.23$), claimed more space in front of the body than behind (see Figure 1). Type A salespeople ($t(75) = 2.81$, $p < .01$)

claimed more space behind the body than in front, while Type B salespeople ($t(75) = -.83$) did not differ reliably in spacial claims in front vs. behind the body. Thus, only Type A's in the customer role demonstrated reactive expansion of personal space consistent with the hypothesis that space would be expanded in front of the body. A contrast of Type A customers with the other groups indicates a reliable difference ($t(75) = 2.06$, $p < .025$), paralleling the findings with interpersonal distance change: Only subjects prone to reactance and confronted with a threat demonstrated expansion of personal space in the direction from which the threat originated.

The fact that Type A's claimed larger personal spaces in front of their bodies when confronted with a threat to control raises the possibility that their greater change to a closer final position is an artifact, due solely to less restriction by the string in front of them. To address this issue, the correlation between the amount of space directly in front of the body and amount of change in distance (initial-final) was computed within each condition. All correlations were negative and nonsignificant (and did not differ significantly from each other), indicating that large front spaces were not associated with greater changes to closer final positions, reducing the possibility of an artifact.

Discussion

The results of Study I indicated that subjects utilized nonverbal behaviors differently, and predictably, when interacting in the role of a customer or salesperson. More importantly, Type A's were shown to respond to the implied threat in the customer role by claiming larger personal spaces in front of the body, and by reactively changing their interpersonal distance from the beginning to the end of the interaction. However, one ambiguity necessitated the conductance of an additional study.

Recall that subjects in the customer role claimed they had more control than subjects in the salesperson role. This was explained as an instance of reactance to the threat whereby subjects claimed more control as a means of reasserting control. However, it is possible that customers simply did not perceive a threat to control. As a result, the self-reported control measure is ambiguous as a check on the role perceptions since it was collected during, rather than before, the interaction. To circumvent this problem, an additional study was conducted to verify that a reactance situation had been created.

STUDY II

Method

Subjects & Procedure

Thirty-nine undergraduate volunteers (17 male, 22 female) participated in a partial replication of Study I. After completing the JAS, subjects were given the instructions for either the customer or salesperson role (randomly determined) and the expectation that they would actually interact with another person. However, prior to the expected interaction, subjects were asked to complete a questionnaire that measured role and interaction perceptions. Four key items were included on the questionnaire (see Table 1). These measured the subjects' perceptions of freedom to behave as they wished during the interaction, restrictions to behavioral freedom, attempted control by the other participant, and anticipated stress. The item tapping behavioral freedom (item 1, Table 1) was used to determine whether the roles differed in their inherent restrictiveness (i.e., range of behaviors available). The item measuring perceived restriction of behavioral freedom as a function of the other person (item 2) determined whether reactance was invoked. Similarly, the item measuring

attempted control by the other participant (item 3) was used as an indicator of reactance, but was worded in terms of the basis for Type A behavior (i.e., control). Finally, an item measuring anticipated stress (item 4) was included to determine whether the conditions differed in terms of comfort. Following completion of the questionnaire, subjects were debriefed and excused.

Results

The JAS scores were split at the median ($Md = 8.5$) to produce the following cell frequencies: Type A -- customer -- 11, Type B -- customer -- 8, Type A -- salesperson -- 8, Type B -- salesperson -- 12. Analyses of variance with least squares solution for unequal n were used for all items on the questionnaire. All items presented below were rated on 8-point bipolar scales. Table 1 contains the cell means for the four questions.

Insert Table 1 about here

To constitute a valid reactance procedure, subjects in both the salesperson and customer roles must perceive that they had equal freedom to behave as they wished, but only customers should perceive that their freedom would be threatened. In response to the question: "How much freedom will you have to perform the task any way you wish?", both salespeople ($M = 6.58$) and customers ($M = 6.57$) perceived a high degree of freedom. However, when asked to indicate the degree to which the other person in the interaction would attempt to restrict their freedom to behave as they wished, significant differences emerged: Customers anticipated a greater restriction to freedom ($M = 6.49$) than salespeople ($M = 5.06$), $F(1,35) = 8.74$, $p < .005$. Similarly, customers anticipated

that the other person would attempt to gain more control over them ($\bar{M} = 6.98$) than did salespeople ($\bar{M} = 5.14$), $F(1,35) = 25.43$, $p < .001$. Customers and salespeople did not differ in their perceptions of how stressed they thought they would be during the interaction. The only Type A-B main effect to emerge indicated that Type A's anticipated that the other person would attempt to gain more control over them ($\bar{M} = 6.41$) than Type B's ($\bar{M} = 5.71$), $F(1,35) = 3.78$, $p < .06$. This greater perception of control loss by Type A's is consistent with their greater spatial claims in Study I.

The results of Study I indicated greater reactive use of nonverbals by Type A's, but only in the customer role. This suggests that Type A's should anticipate a greater threat to control than Type B's when assuming the role of a customer. Contrasts between Type A's and B's within the customer condition indicated that Type A's anticipated both a greater threat to freedom and greater control attempts by the other participant (see Table 1). However, only the latter difference was statistically reliable ($t(35) = 1.89$, $p < .05$). Contrasts between Type A's and B's within the salesperson condition for the same two items were not significant. Finally, Type A customers expected to experience greater stress ($\bar{M} = 5.91$) than Type B customers ($\bar{M} = 4.75$; $t(35) = 1.83$, $p < .05$), with no significant differences between Type A and B salespeople.

Discussion

The above results verify that the customer condition constitutes a threat to freedom, and that Type A's in that condition perceived the threat to control to be greater than Type B's. These latter findings are somewhat surprising given that Type A/B differences in perceptions of control and freedom are not found consistently, both in the general

Type A/B literature (see Glass, 1977) and Type A/B-reactance studies (e.g., Carver, 1980; Snyder & Frankel, Note 1). That reactance perceptions were found both overall, and differentially as a function of Type A/B, by customers suggests that the sales interaction produces a salient threat to behavioral freedom. In summary, the perceptual findings parallel the behavioral findings of Study I.

General Discussion

The results of the present two studies demonstrate that an interpersonal interaction characterized by threat to freedom can produce reactance effects in the use of nonverbal behaviors. Overall, subjects in the customer and salesperson roles utilized nonverbal communication in distinct ways. More importantly, Type A's and B's differed reliably in the use of personal space and interpersonal distance while in the customer role, a role which subjects in Study II indicated was threatening and inducive of reactance. Thus, overall, the results were supportive of the major hypotheses.

There are a number of implications of these findings. First, they suggest that socially-induced threats to control can produce reactance-like responses by Type A's in a manner similar to previous studies using task-oriented threats. Given the abundance of day-to-day interpersonal encounters where a person may feel that control or autonomy is threatened (e.g., leader-subordinate conflicts, bargaining, disputes over autonomy), it is clear that these situations can be a potentially important part of the Type A syndrome. As Rhodewalt and Comer (in press) have noted, the greater expectations or concerns for control by Type A's, in combination with the day-to-day threats to control, may produce a cumulatively more stressful existence. A second implication is that the stress may be

compounded when two persons with Type A tendencies are in conflict. Behaviors which serve to reassert control for one may only trigger increased hostility in the other. Research is needed to verify these hypotheses and to suggest ways in which Type A's can maintain their control without increasing other's hostility (Carver & Glass, 1978).

The results for personal space have important implications in relation to another body of research. Recall that Type A's, when compared to Type B's, claimed larger personal spaces, larger frontal personal spaces under high threat, and that larger personal spaces were associated with higher perceptions of control. The literature on crowding suggests that high density, when accompanied by a lack or loss of control, can lead to the experience of crowding (see Greenberg, 1978; Schmidt & Keating, 1979), resulting in negative performance and emotional effects. The synthesis of this literature with the present findings suggests that Type A's would be more susceptible to the negative effects of crowding. The greater personal space claims by Type A's, both overall and in response to threat, would be restricted in a high density situation. Given that individuals with large personal spaces have been found to have lower thresholds of crowding than individuals with small personal spaces (Cozby, 1973; Dooley, 1978), it is likely that Type A's would experience the psychological state of crowding more than Type B's. Furthermore, high density situations are generally more restrictive in terms of the types of behaviors that can be performed (e.g., Proshansky, Ittelson, & Rivlin, 1970; Stokols, 1972), increasing the chances that a loss of control will be perceived (cf. Schmidt & Keating, 1980). The result may be that crowded settings or other restrictive situations are potentially more stressful for Type A's.

In summary, this study has broadened examination of the Type A pattern

to the interpersonal sector of behavior. By demonstrating that Type A's and B's differ in important ways in their interpersonal transactions with others, this study has opened a potentially rich area of research.

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Footnotes

¹Most references to personal space in the literature actually refer to the metric distance separating individuals, that is, interpersonal distance. A distinct definition for personal space is given later in this paper.

²The original design included sex of subject and sex of confederate to allow more generalizable results. Analyses indicated no effects (main or interactive) for sex of subject indicating that females smiled more and exhibited more eye contact (p 's $< .05$). Because these results are not central to the focus of this paper, they will not be presented.

³This residualization procedure is quite similar to an analysis of covariance using initial distance as the covariate. The difference lies in the value to which distance scores are "held constant." In ANCOVA, this value is the grand mean, whereas in the present analysis, it is the high or low reactance condition mean. The rationale for this procedure is that ANCOVA would remove variation due to high-low reactance, whereas residualization within conditions removes only distance variation that is independent of the treatments. As in ANCOVA, homogeneity of regressions within conditions is necessary, and was satisfied in the present case.

Table 1

Perceptions of the Sales Interaction as a Function
of Subject Role and Type A/B

Questionnaire Items	Subject Role			
	<u>Salesperson</u>		<u>Customer</u>	
	<u>Type A's</u>	<u>Type B's</u>	<u>Type A's</u>	<u>Type B's</u>
1. How much freedom do you have in performing the task any way you wish?	6.00	7.17	6.64	6.50
2. Once you are taking part in the interaction, how much will the other person <u>try</u> to restrict your freedom to behave as you wish?	4.88	5.25	6.73	6.25
3. How much control will the other person attempt to gain over you during the interaction?	5.38	4.92	7.45	6.50
4. How much stress will you feel during the interaction?	5.50	5.75	5.91	4.75

Note. All items measured on 8-point bipolar scales, from low (1) to high (8).

See text for significance tests.

Figure Caption

Figure 1. Size and shape of personal space as a function of subject role and Type A/B.

